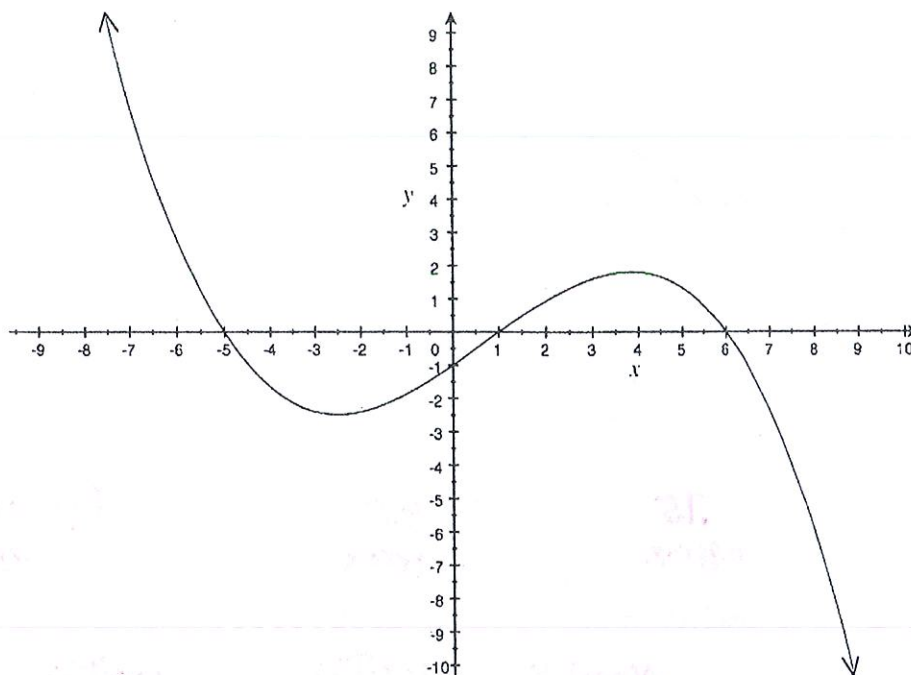


Name: Answer Key

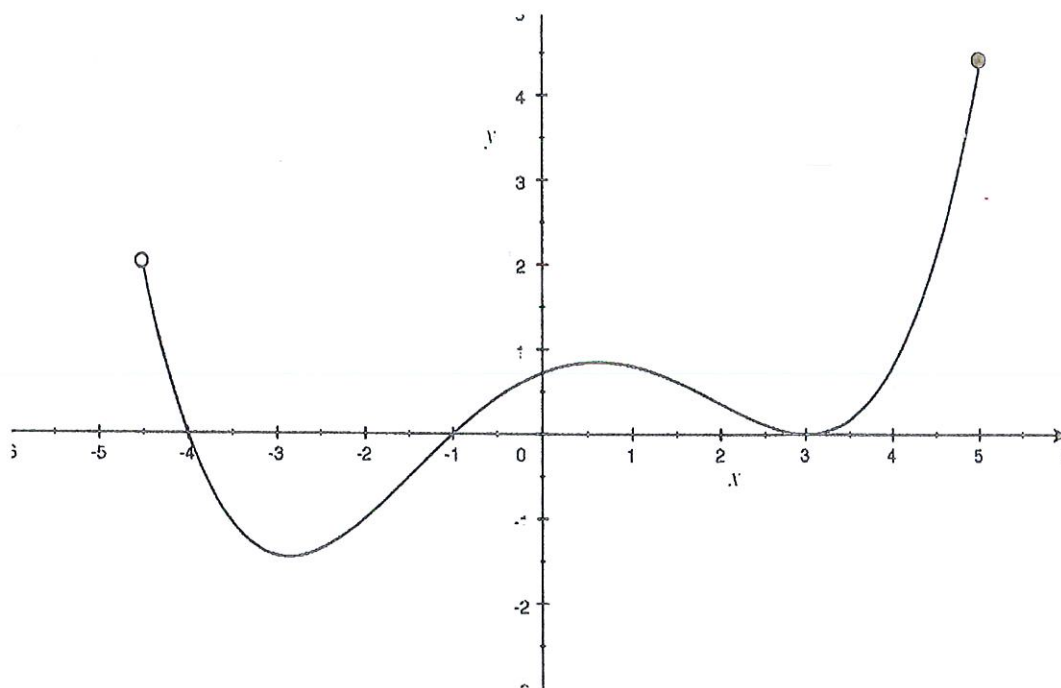
Representational Fluency: Graphs

Analyzing
Graphs

Use each graph of $f(x)$ to answer the questions. For some questions, you may need to estimate.



- 1) $f(0) = -1$ $f(1) = 0$ $f(-6) = 3$ $f(8) = -6$
- 2) Is $f(-7.3)$ positive or negative? **Positive** **approximately** **approximately**
- 3) True or false: $f(9) > 0$ **False**
- 4) For what values of x does $f(x) = 0$? **$x = -5, x = 1, x = 6$**
- 5) What is the value of f when $x = 0$? **$f(0) = -1$ $y = -1$ when $x = 0$**
- 6) Over what **intervals** is $f(x) > 0$? **$[-\infty, -5) \cup (1, 6)$**
- 7) Over what **intervals** is $f(x) \leq 0$? **$[-5, 1] \cup [6, \infty)$**
- 8) How many times do each of the following lines intersect the graph of f ?
 - a. $y = 3$ **once**
 - b. $y = -1$ **3 times**
 - c. $x = 4$ **once**
- 9) For what values of x does:
 - a. $f(x) = 1$ **$x = -5.5$
 $x = 2$
 $x = 5.5$**
approximately
 - b. $f(x) = 7$ **$x = -7$
approximately**
 - c. $f(x) = -6$ **$x = 8$
approximately**



1) $f(-4) = 0$

$f(0) = 0.75$
approx

$f(5) = 4.5$
approx

$f(4.5) = f(2) = 0.75$
approx

2) Is each one positive or negative? $f(-3)$

Negative

$f(-0.5)$

Positive

$f(-4.1)$

Positive

3) True or false: $f(3) > 0$

False $f(3) = 0$

4) Over what intervals is $f(x) \geq 0$?

$(-4.5, -4] \cup [-1, 5]$

5) Over what intervals is $f(x) > 0$?

$(-4.5, -4) \cup (-1, 3) \cup (3, 5)$

6) Over what intervals is $f(x) < 0$?

$(-4, -1)$

7) How many times do each of the following lines intersect the graph of f ?

a. $y = 1$

twice

b. $y = 2$

once

c. $y = -2$

Zero

d. $y = \frac{1}{2}$

four

8) For what values of x does:

b. $f(x) = 0$

$x = -4$

$x = -1$

$x = 3$

b. $f(x) = 2$

$x = 4.5$

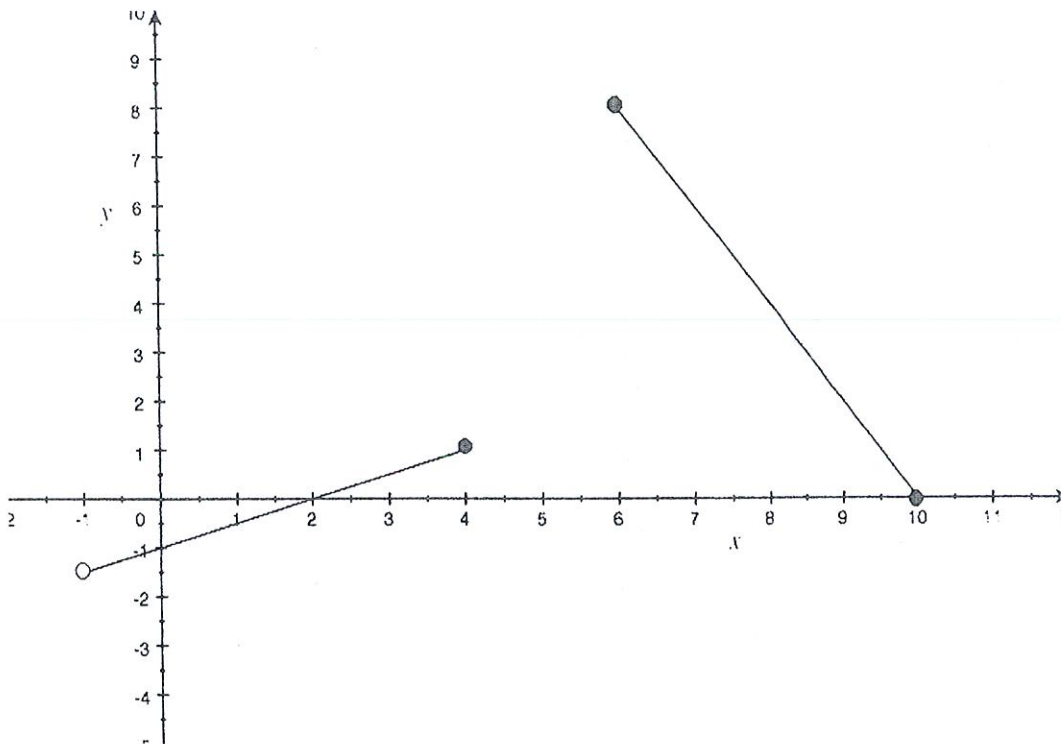
approx

c. $f(x) = -1$

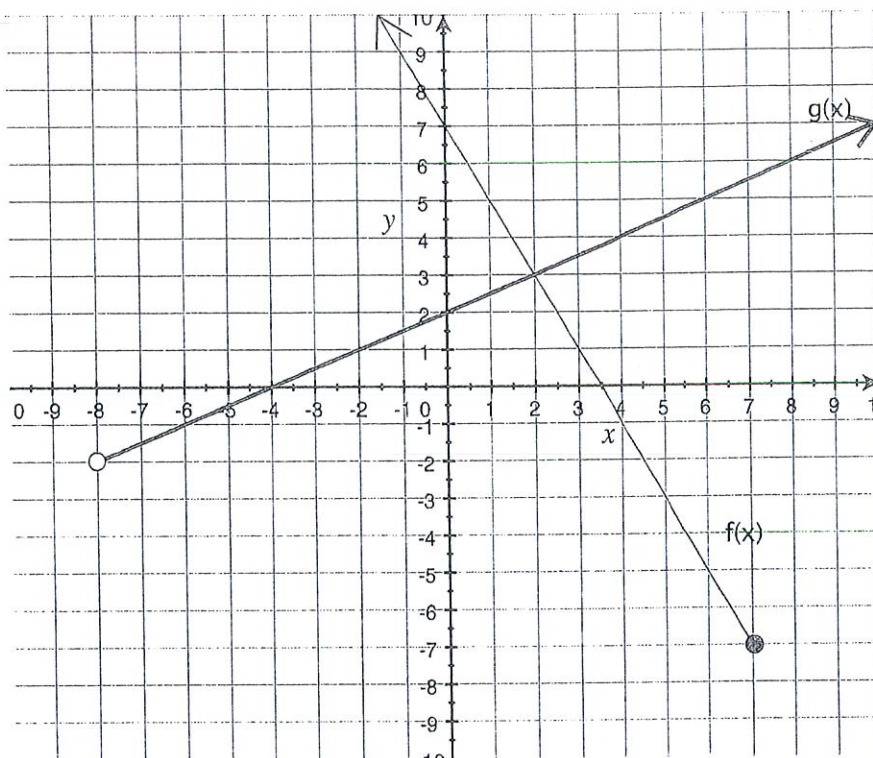
$x = -2$

$x = -3.5$

approx



- 1) Find the domain and range. $D: (-1, 4] \cup [6, 10]$ $R: (-1, 1] \cup [0, 8]$
- 2) Find $f(2)$, $f(4)$, and $f(f(6.5))$. $f(2) = 0$ $f(4) = 1$ $f(f(6.5)) = f(7) = 6$
- 3) Over what interval is $f(x) < 0$? $(-1, 2)$
- 4) Over what intervals is $f(x) \geq 0$? $[2, 4] \cup [6, 10]$
- 5) How many times does the line $y = 1$ intersect $f(x)$? **Twice**
- 6) What is the value of $f(x)$ when $x = 9$? $f(9) = 2$ approx
- 7) For what values of x does $f(x) = 0$? $x = 2$ since $f(2) = 0$
 $x = 10$ since $f(10) = 0$



1) What is the domain of $f(x)$?

$$(-\infty, 7]$$

2) What is the domain of $g(x)$?

$$(-8, \infty)$$

3) What is the range of $f(x)$?

$$[-7, \infty)$$

4) What is the range of $g(x)$?

$$(-2, \infty)$$

5) $g(5) + f(5) =$

$$4.5 + -3 = 1.5$$

6) $f(2) \times g(2) = 3 \cdot 3 = 9$

7) $|f(6)| = |-5| = 5$

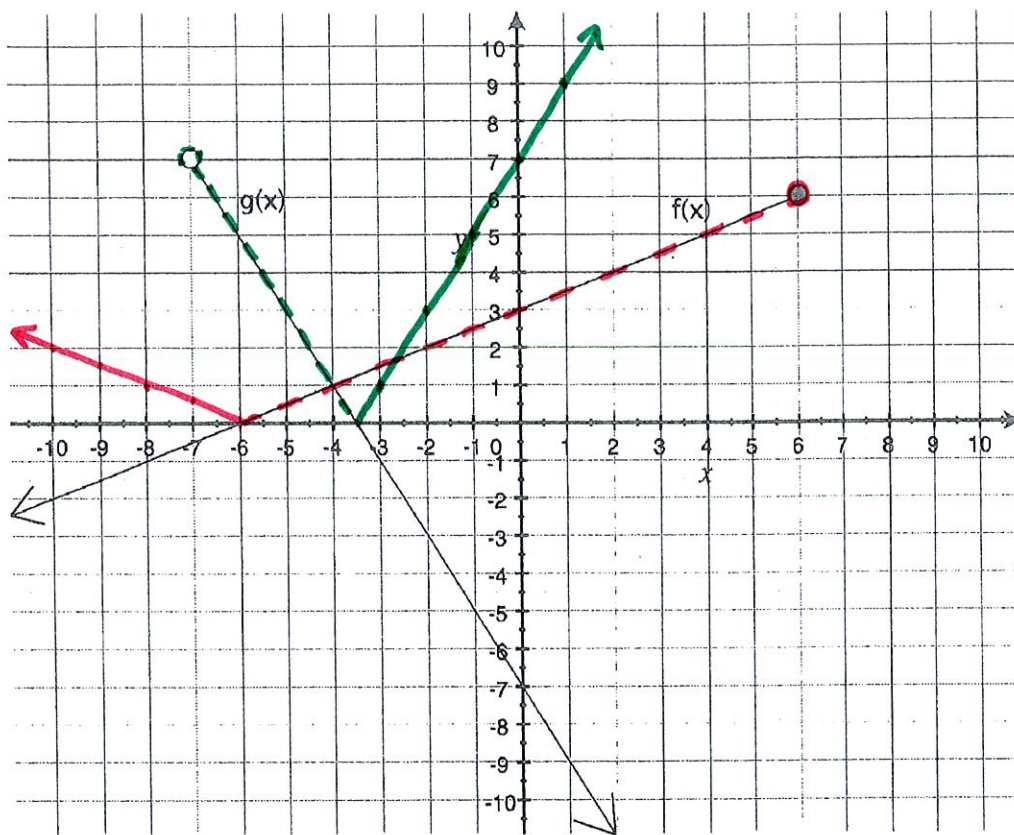
8) $g(|-6|) = g(6) = 5$

9) $|g(-6)| - |f(0)| = |-1| - |7| = 1 - 7 = -6$

10) $f(3.5) \times g(3.5) = 0 \times 3.75 = 0$

11) $g(4) - f(4) = 4 - -1 = 4 + 1 = 5$

12) $f(g(0)) = f(2) = 3$



1) What is the domain of $f(x)$?

$$(-\infty, 6]$$

3) What is the range of $f(x)$?

$$(-\infty, 6]$$

$$5) g(-2) + f(-2) = -3 + 2 = -1$$

$$7) |f(-8)| = |-1| = 1$$

$$9) g(-5) + f(-5) = 3 \div \frac{1}{2} = 3(2) = 6$$

$$11) (f \circ g)(-6) = f(g(-6)) = f(5) = 5.5$$

$$10) f(-6) \times g(-6) = 0 \times 5 = 0$$

$$12) (g \circ f)(-6) = g(f(-6)) = g(0) = -7$$

13) On the same coordinate plane above, make a graph of $|f(x)|$ and $|g(x)|$.

↓
red
solid
and
dashed
together

↓
green
solid
and
dashed
together